

Patent claims

(Original)

1. Gearbox device, comprising: two parallel tracks (30, 31; 61, 62), which are both arranged to be moveable; at least one planet wheel (9, 63), arranged between the two tracks (30, 31; 61, 62) and operatively connected at its perimeter with the two tracks (30, 31; 61, 62); a bearing axle (10, 67) moveable parallel to the two tracks and about which the planet wheel (63) is rotatably mounted; and a power transmission axle (12, 69), the arrangement being such that, as a result of the planet wheel (9, 63) rolling along the two tracks (30, 31; 61, 62), both movements of the power transmission axle (12, 69) can be transmitted to at least one of the moveably arranged tracks (30, 31; 61, 62) and conversely movements from at least one of the moveably arranged tracks (30, 31; 61, 62) can be transmitted to the power transmission axle (12, 69) and/or the respectively other moveably arranged track (30, 31; 61, 62), **characterised in that** the power transmission axle (12, 69) is arranged eccentrically at the bearing axle (10, 67) or a carrier element (6) for the planet wheel (9, 63) and is moveably guided on a track (30a, 70a) which extends parallel to and at a prescribed spacing from the two moveable tracks (30, 31; 61, 62).
2. *(Original)* Gearbox device according to claim 1, **characterised in that** the bearing axle (10, 67) has a diameter which is from 0.5 - 1 times the value of the diameter of the planet wheel (9, 63), and **in that** the planet wheel (9, 63) is designed as a ring

which is rotatably mounted on the bearing axle
(10, 67).

(currently amended)

claim 1

3. Gearbox device according to ~~one of claims 1 or 2,~~
5 **characterised in that** the eccentric position of
the power transmission axle (12, 69) is variable.

(currently amended)

claim 1

4. Gearbox device according to ~~one of claims 1 to 3,~~
10 **characterised in that** it is in the form of a
planetary gear system.

(original)

5. Gearbox device according to claim 4, **characterised**
15 **in that** the one moveably arranged track is formed
by the outer perimeter of a sun wheel (1) and the
other moveably arranged track is formed by the
inner perimeter of a ring gear (2) of the
planetary gear system.

(currently amended)

6. Gearbox device according to claim 4 ~~or 5,~~
20 **characterised in that** the bearing axle (10) is
fastened to a planet carrier (6, 26) which is
mounted to rotate about the central axis (4) of
the planetary gear system.

(currently amended)

claim 4

- 25 7. Gearbox device according to ~~one of claims 4 to 6,~~
characterised in that the power transmission axle
(12) is configured as a journal projecting from
the bearing axle (10) and is coupled to a
connecting lever (38) which sits on a drive shaft
30 (39) mounted so as to rotate about the central
axis (4) of the planetary gear system.

(currently amended)

claim 4

8. Gearbox device according to ~~one of claims 4 to 6,~~
35 **characterised in that** the power transmission axle
is in the form of a journal (42) projecting from

the bearing axle (10) and is coupled to a connecting rod (43) of a crank mechanism.

(currently amended) *claim 4*
 9. Gearbox device according to ~~one of claims 4 to 8,~~

5 **characterised in that** the ring gear (2) on the outer perimeter is in the form of a driving or driven member.

(currently amended) *claim 4*
 10. Gearbox device according to ~~one of claims 4 to 9,~~

10 **characterised in that** it contains two planetary gear systems which are coupled to one another, one of these systems being set up to drive one of the two tracks of the other planetary gear system.

(original)
 15 11. Gearbox device according to claim 10, **characterised in that** the sun wheels (1, 21) of the two planetary gear systems are securely interconnected, the sun wheel (21) of a first planetary gear system being driven via the ring gear (22) of the first planetary gear system, which ring gear is driven by the second planetary gear system, and thus driving the sun wheel (1) of the second planetary gear system.

(currently amended)
 25 12. Gearbox device according to claim 10 ~~or 11,~~ **characterised in that** the eccentric power axles (12, 24) of the two gear systems are arranged with their planet wheels (9, 23) lying offset by 180° behind one another or opposite one another.

(currently amended)
 30 13. Gearbox device according to ~~one of claims 10 to 12,~~ *claim 10* **characterised in that** the point of the action of force (radius on the gear system) at the power axle (12) with lever arm and journal (28, 29) at the planet wheel (9) of the first gear system is
 35 identical to the two operative connections of

planet wheel (9, 23) and ring gear (2, 22) (broken line 30).

- (currently amended)
14. Gearbox device according to ~~one of claims 10 to 13,~~ ^{claim 10} characterised in that the central axis of the power axle (25) of the second gear system and its radius are identical to the operative connection of the planet wheel (9) and the sun wheel (1) of the first gear system (broken line 31, 34).
- 10 (currently amended)
15. Gearbox device according to ~~one of the preceding claims,~~ ^{claim 1} characterised in that the power axle (12) in a crank mechanism is arranged offset by 180° on the carrier element (6).
- 15 (currently amended)
16. Gearbox device according to ~~one of the preceding claims,~~ ^{claim 1} characterised in that the power axle (42) at the bearing axle (10) in a crank mechanism is arranged on the opposite side of the operative connection sun wheel/planet wheel and the main drive (high speed, low power) then takes place at the sun wheel (1).
- 20
- (currently amended)
17. Gearbox device according to ~~one of claims 10 to 16,~~ ^{claim 10} characterised in that the bearing axle (25) of the planet wheel (23) of the first gear system is arranged to be optionally fixed or rotatable, or is held fixed in place.
- 25
- (currently amended)
18. Gearbox according to ~~one of claims 1 to 3,~~ ^{claim 1} characterised in that the two tracks (61, 62) are designed linear or arcuate.
- 30
- (Original)
19. Gearbox device according to claim 18, characterised in that it contains a rod-shaped guiding element (70), mounted so as to be
- 35

displaceable parallel to tracks (61, 62) and coupled to the bearing axle (67) in the region of the power transmission axle (69).

- (currently amended)
- 5 20. Gearbox device according to claim 18 ~~or 19~~,
 characterised in that, in order to avoid undesired
 lever actions between the guiding element (70) and
 the power transmission axle (69), said guiding
 element is mounted in bearings (71), the effective
 10 lines (70a) of which lie substantially in the same
 plane as the power transmission axle (69).

- (currently amended)
21. Gearbox device according to ~~one of claims 18 to~~
~~20, claim 18~~ characterised in that it contains at least one
 15 driving or driven gear (72, 86) which is in
 operative connection with a side of one of the
 moveable tracks (62), this side being remote from
 the planet wheel (63).

- (currently amended)
- 20 22. Gearbox device according to ~~one of claims 18 to~~
~~21, claim 18~~ characterised in that the tracks (61, 62) are
 configured as racks, chains, cables or roller
 surfaces.

- (currently amended)
- 25 23. Gearbox device according to ~~one of claims 18 to~~
~~22, claim 18~~ characterised in that one of the tracks (62)
 drives a lift or at least a driven gear (72).

- (currently amended) claim 1
24. Gearbox device according to ~~one of claims 1 to 23,~~
 30 characterised in that the carrier element (6)
 comprises a ring, an arm or a disc.

- (currently amended)
25. Gearbox device according to ~~one of claims 10 to~~
~~14, claim 10~~ characterised in that the power transmission
 35 axle (25) of the second gear system is connected

via a U-shaped arm (32) to a shaft (B1) which is coaxial with the gearbox axis (4).

(currently amended)

26. Gearbox device according to ~~one of claims 10 to 14~~
5 and ~~24, 25,~~ ^{*claim 10*} characterised in that the power transmission axle (25) is arranged to be rotatable or fixed, or is held fixed in place.